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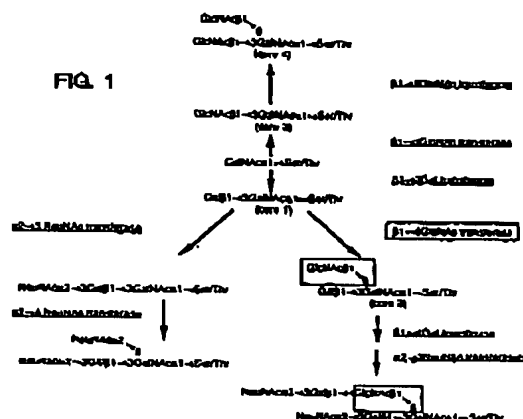
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A novel-beta1-6 N-acetylglucosaminyltransferase, its acceptor molecule, leukosialin, and a method for cloning proteins having enzymatic activity.

The present invention provides a novel β 1-6 N-acetylglucosaminyltransferase, which forms core 2 oligosaccharide structures in O-glycans, and a novel acceptor molecule, leukosialin, CD43, for core 2 β 1-6 N-acetylglucosaminyltransferase activity. The amino acid sequences and nucleic acid sequences encoding these molecules, as well as active fragments thereof, also are disclosed. A method for isolating nucleic acid sequences encoding proteins having enzymatic activity is disclosed, using CHO cells that support replication of plasmid vectors having a polyoma virus origin of replication. A method to obtain a suitable cell line that expresses an acceptor molecule also is disclosed.

FIG. 1



EP 0 590 747 A3



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Application Number
EP 93 25 0268

| DOCUMENTS CONSIDERED TO BE RELEVANT | | | |
|--|---|--|---|
| Category | Citation of document with indication, where appropriate, of relevant passages | Relevant to claim | CLASSIFICATION OF THE APPLICATION (Int.Cl.5) |
| D,X | PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF USA., vol.86, no.4, February 1989, WASHINGTON US pages 1328 - 1332 ADAM PALLANT ET AL. 'Characterization of cDNAs encoding human leukosialin and localization of the leukosialin gene to chromosome 16' * abstract * * page 1329, left column, paragraph 3 - page 1330, left column, paragraph 4 * * page 1331, right column, paragraph 2 - page 1332, left column, paragraph 1 * --- | 9-15 | C12N15/54 C12N9/10 C12N15/12 C07K13/00 C12N15/86 C12N15/64 C12N5/10 |
| X | JOURNAL OF BIOLOGICAL CHEMISTRY, vol.266, no.13, 5 May 1991, BALTIMORE, MD US pages 8483 - 8489 SHINICHI KUDO ET AL. 'A short, novel promoter sequence confers the expression of human leukosialin, a major sialoglycoprotein on leukocytes' * abstract * * page 8484, right column, paragraph 2 - page 8485, left column, paragraph 1; figure 2 * --- -/- | 9-15 | TECHNICAL FIELDS SEARCHED (Int.Cl.5) C12N C07K |
| The present search report has been drawn up for all claims | | | |
| Place of search THE HAGUE | | Date of completion of the search 13 January 1995 | Examiner Montero Lopez, B |
| <p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</p> <p>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons * : member of the same patent family, corresponding document</p> | | | |

EP FORM 1 (Rev. 01/95)



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Application Number
EP 93 25 0268

| DOCUMENTS CONSIDERED TO BE RELEVANT | | | |
|---|---|---|---|
| Category | Citation of document with indication, where appropriate, of relevant passages | Relevant to claim | CLASSIFICATION OF THE APPLICATION (Int. CL.5) |
| X | PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF USA., vol.86, no.8, April 1989, WASHINGTON US pages 2819 - 2823 C. SIMON SHELLEY ET AL. 'Molecular characterization of sialophorin (CD43), the lymphocyte surface sialoglycoprotein defective in Wiskott-Aldrich syndrome' * abstract * * page 2820, right column, paragraph 3; figure 2 * * page 2822, left column, paragraph 4 - right column, paragraph 1 * | 9-15 | |
| X | NUCLEIC ACIDS RESEARCH., vol.19, no.1, 11 January 1991, ARLINGTON, VIRGINIA US pages 85 - 92 MICHAEL HEFFERNAN ET AL. 'Polyoma and hamster papovavirus large T antigen-mediated replication of expression shuttle vectors in Chinese hamster ovary cells' * page 85, right column, paragraph 2 - page 86, left column, paragraph 3 * * page 86, right column, paragraph 3 * * page 87, left column, last paragraph - right column, paragraph 1 * * page 90, left column, paragraph 2 - right column, paragraph 1 * * page 91, left column, last paragraph - right column, paragraph 2 * -/-- | 16-23 | TECHNICAL FIELDS SEARCHED (Int. CL.5) |
| The present search report has been drawn up for all claims | | | |
| Place of search THE HAGUE | | Date of completion of the search 13 January 1995 | Examiner Montero Lopez, B |
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Application Number
EP 93 25 0268

| DOCUMENTS CONSIDERED TO BE RELEVANT | | | |
|---|--|---|--|
| Category | Citation of document with indication, where appropriate, of relevant passages | Relevant to claim | CLASSIFICATION OF THE APPLICATION (Int. CLS) |
| P, X | <p>PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF USA., vol.89, no.19, 1 October 1992, WASHINGTON US</p> <p>pages 9326 - 9330</p> <p>MARTI F.A. BIERHUIZEN ET AL. 'Expression cloning of a cDNA encoding UDP-GlcNAc:Gal-beta-1-3-GalNAc-R (GlcNAc to GalNAc) beta-1-6GlcNAc transferase by gene transfer into CHO cells expressing polyoma large tumor antigens'</p> <p>* abstract *</p> <p>* page 9326, right column, paragraph 3 *</p> <p>* page 9327, left column, paragraph 4 - paragraph 5 *</p> <p>* page 9327, right column, paragraph 3 - page 9328, right column, paragraph 1; figure 3 *</p> <p>* page 9329, left column, paragraph 3 - right column, paragraph 1 *</p> <p>* page 9329, right column, paragraph 3 *</p> <p>-----</p> | 1-8, 16-25 | |
| | | | TECHNICAL FIELDS SEARCHED (Int. CLS) |
| The present search report has been drawn up for all claims: | | | |
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